Technology Opportunity
Glenn Research Center • Cleveland • Ohio
Technology Transfer & Partnership Office
TOP3–00220

Small Multi-Purpose Research Facility

Facility Description

The Small Multi-Purpose Research Facility (SMiRF) is a low-cost, small-scale screening facility simulating space and launch environments for propulsion concept and component testing with liquid hydrogen. The facility can also handle GH_2 and GO_2. Up to 512 channels of data can be collected at a nominal rate of 1/s. Data is collected and processed by a dedicated workstation computer and is archived on Glenn's central computer.

Facility Benefits

- Offers tailored test conditions for concept screenings and component testing
- Offers cryogenic fluid handling
- Provides simulated shuttle ascent pressure profile
- Accommodates in-house and private industry research programs
- Experienced staff of technicians, engineers, researchers, and operators

Commercial Applications

- Cryogenic storage
- Insulation and transfer technologies for cryogenic fluids
- Mass gauging

Programs and Projects Supported

- Insulation performance tests for the X–33 vehicle
- Rapid chill and fill of a subscale propellant tank for the High Energy Upper Stage program
- Demonstration of a zero boiloff long-term cryogenic storage concept for the Mars Exploration Program

SMiRF complex.

Capabilities

SMIRF	
Dimensions (diam by length)	72 by 100 in.
Vacuum System	(Three) 10-in. ODP
No load pressure (torr)	8.5×10^{-6}
Pumping Speed liter/sec (air)	7000
Features	Hazardous test capability thermal shroud launch pressure profile

Facility Testing Information

http://facilities.grc.nasa.gov

Contacts

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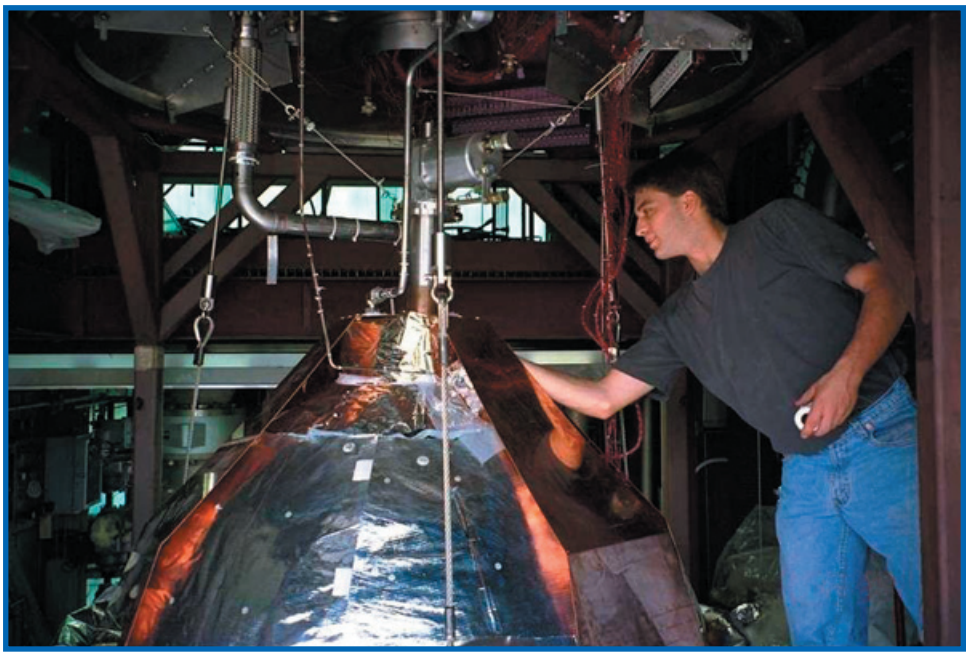

Cryocooler preparation for zero-boiloff test.